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Effectiveness of Audiovisual Media and Posters in Improving Breast Self-Examination (BSE) Behavior Among Couples of Reproductive Age

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ABSTRACT Breast cancer remains a major global public health concern, while participation in breast self-examination (BSE/SADARI) is still suboptimal among women. Inadequate knowledge, attitudes, and practical skills may limit consistent BSE practice, indicating the need for accessible and effective health education media. This study aimed to compare the effectiveness of audiovisual and poster-based health education in improving knowledge, attitudes, and BSE practice among married women aged 30–49 years in the working area of Sukomoro Health Center, Magetan Regency. A quantitative quasi-experimental study was conducted using a nonequivalent pretest–posttest control group design. A total of 156 eligible respondents were allocated to an audiovisual group (n=78) and a poster group (n=78). Data on knowledge, attitudes, and BSE practice were collected using validated and reliable questionnaires and an observation checklist. Within-group changes were analyzed using paired-sample t-tests, while between-group differences were assessed using independent-sample t-tests at a significance level of 0.05. The audiovisual group demonstrated significant improvements in knowledge, attitudes, and BSE practice, with mean scores increasing from 6.09 ± 0.856 to 9.00 ± 0.721 , 29.44 ± 1.325 to 37.99 ± 1.222 , and 18.94 ± 3.694 to 33.55 ± 3.992 , respectively (all $p < 0.001$). In the poster group, knowledge increased from 5.23 ± 1.104 to 6.76 ± 0.900 and practice from 11.32 ± 3.694 to 11.87 ± 3.992 (both $p < 0.001$), whereas attitude did not change significantly. Between-group comparisons showed significant differences in knowledge, attitudes, and practice after the intervention (all $p < 0.001$). These findings indicate that both media can support selected BSE outcomes, while audiovisual education produced broader short-term improvements across cognitive, affective, and behavioral domains. These results provide comparative evidence for selecting educational media in community-based breast cancer early-detection programs.

INDEX TERMS Breast Self-Examination, Audiovisual Education, Poster Education, Breast Cancer, Health Education.

I. INTRODUCTION

Breast cancer remains a major global public health problem, with its burden continuing to affect women across different socioeconomic settings. Recent Global Burden of Disease estimates demonstrate substantial increases in breast cancer incidence over the past three decades, while disparities in early detection and access to appropriate care remain important concerns [1], [2]. The World Health Organization (WHO) identifies health promotion and early detection as central components of the Global Breast Cancer Initiative, particularly in settings where delayed diagnosis contributes to poorer outcomes [3]. In Indonesia, breast self-examination (BSE), locally known as SADARI, remains a relevant community-level approach for increasing breast health awareness because it is inexpensive and accessible. Nevertheless, evidence indicates that BSE practice remains suboptimal. A systematic review and meta-analysis of Indonesian studies estimated the national prevalence of BSE practice at 43.14%, with knowledge, attitude, family support,

and exposure to breast cancer information associated with BSE practice [4]. Similar gaps in knowledge, attitudes, and practice have been reported among women in other settings, indicating that awareness alone may not be sufficient to establish appropriate self-examination behavior [5], [6].

Health education is therefore an important component of early-detection promotion. Previous intervention studies have shown that structured education can improve breast cancer knowledge and BSE-related outcomes among women and adolescents [7]–[10]. Theory-based interventions, including approaches informed by the Theory of Planned Behavior and self-efficacy theory, have also demonstrated potential for improving BSE behavior, confidence, and practical skills [11], [12]. However, the delivery format of health information may influence how effectively participants understand and reproduce a practical procedure. Audiovisual education combines visual demonstrations, narration, and sequential presentation, allowing learners to observe procedural steps rather than relying solely on written descriptions.

Experimental evidence has reported improvements in BSE knowledge, attitudes, and performance following video-based or multimedia training [13], [14]. More recent studies have similarly reported benefits from virtual education, animated video, and video-based health promotion, although outcomes may differ according to population, intervention duration, and educational content [15]–[18].

Posters remain widely used in community health promotion because they are relatively inexpensive, easy to display, and capable of communicating concise messages to large audiences. However, their static format may provide less procedural detail than audiovisual media, particularly when participants need to learn a sequence of examination techniques. Existing literature has examined peer education, group education, demonstrations, multimedia training, and digital interventions [7], [9], [13], [19], [20]. Nevertheless, direct comparative evidence between audiovisual and poster media within the same target population remains limited. Furthermore, many previous studies have concentrated on adolescents or university students, whereas evidence among married women aged 30–49 years in community primary-healthcare settings is comparatively less developed. Studies that simultaneously evaluate knowledge, attitudes, and observable BSE practice are also less common than studies assessing knowledge alone [4], [5], [14].

The present study addresses these gaps by comparing audiovisual and poster-based health education among married women aged 30–49 years in the working area of Sukomoro Health Center, Magetan Regency. The study aims to determine differences in the effectiveness of the two educational media in improving knowledge, attitudes, and BSE practice. The contributions of this study are threefold: (1) it provides direct comparative evidence between audiovisual and poster-based education using the same target population and educational content; (2) it evaluates three complementary behavioral domains knowledge, attitude, and practice rather than relying on a single outcome; and (3) it provides community-level evidence that can inform the selection of health-promotion media for breast cancer early-detection activities in primary healthcare settings. The remainder of this article presents the research methodology, results, discussion of the findings and their implications, and the conclusions and recommendations for future research.

II. METHOD

A. STUDY DESIGN AND SETTING

This study employed a quantitative intervention design to evaluate the effectiveness of two health education media for Breast Self-Examination (BSE/SADARI). The study was conducted using a two-group pretest–posttest approach, in which participants were assessed before and after receiving health education. This design enables changes in knowledge, attitudes, and BSE practice to be examined within each intervention group and subsequently compared between groups. Similar pretest–posttest intervention designs have been widely applied to evaluate BSE education using audiovisual, virtual, and theory-based educational approaches [21]–[23]. The study was conducted from January to May

2026 in Pojoksari Village, within the working area of Sukomoro Health Center, Magetan Regency, East Java. The setting was selected because it was included in the Integrated Reproductive Health Service Program and required strengthened breast cancer early-detection promotion.

B. POPULATION, ELIGIBILITY, AND SAMPLING

The study population comprised 255 married women of reproductive age residing in Pojoksari Village. The eligibility criteria were married women aged 30–49 years who were residents of the study area and met the study requirements. Participants who withdrew from the study or did not complete the required assessments were excluded from the analysis. The sample size was determined using the Slovin formula with a 5% error tolerance, resulting in 156 participants. Participants were selected using simple random sampling and subsequently divided equally into an audiovisual group ($n=78$) and a poster group ($n=78$). Random allocation was performed by drawing numbered lots, providing each recruited participant with an opportunity to be assigned to either educational group. The use of explicit participant eligibility, allocation procedures, and intervention descriptions is important for ensuring methodological transparency and facilitating replication of health intervention studies [24].

C. INTERVENTION MATERIALS AND PROCEDURES

The intervention consisted of health education concerning BSE and early breast cancer detection. The same core educational content was provided to both groups to maintain comparability between interventions. The materials covered the definition and purpose of BSE, its benefits for breast health, the appropriate timing for performing BSE, early signs of breast cancer, and the correct sequence of BSE procedures. The audiovisual group received the educational material through audiovisual media containing visual and auditory information, including demonstrations of the BSE procedure. The poster group received the same educational content through printed poster media. Previous intervention studies have demonstrated that audiovisual and video-based approaches can facilitate the acquisition of BSE knowledge and practical skills by presenting procedural information through visual demonstration and structured explanations [21], [22], [25].

The educational intervention was delivered twice, with each session lasting approximately 5–7 minutes. The intervention was followed by posttest assessment using the same measurement instruments administered during the pretest. The use of comparable educational content and assessment procedures in both groups was intended to ensure that differences in outcomes could primarily be examined in relation to the educational medium. Previous BSE intervention studies have similarly emphasized standardized educational content, clearly defined intervention delivery, and repeated outcome assessment to evaluate changes attributable to health education [22], [23], [26].

D. DATA COLLECTION INSTRUMENTS

Data were collected using validated and reliable instruments comprising a knowledge questionnaire, an attitude questionnaire, and a BSE practice observation checklist. Knowledge was assessed using 10 true–false questions, while attitude was measured using 10 statements based on a four-point Likert scale. BSE practice was assessed using an observation checklist consisting of 10 items representing the required examination procedures. The reported Cronbach's alpha coefficients were 0.988 for the knowledge instrument, 0.939 for the attitude instrument, and 0.892 for the practice instrument, indicating high internal consistency. The use of validated questionnaires and observation-based assessment is consistent with previous BSE intervention research in which knowledge, attitudes, self-efficacy, and practical skills were measured using structured instruments [22], [23], [27]. Data collection followed three stages: pretest, educational intervention, and posttest. The same instruments were used at the pretest and posttest stages to permit direct assessment of changes in outcome scores.

E. DATA PROCESSING AND STATISTICAL ANALYSIS

Data were processed through editing, coding, data entry, and cleaning before statistical analysis. Statistical analysis was conducted using SPSS version 34.0. Descriptive analysis was performed to summarize participant characteristics and the distribution of knowledge, attitude, and BSE practice scores using frequencies, percentages, means, and standard deviations. Data normality was evaluated using the Kolmogorov–Smirnov test, with $p > 0.05$ interpreted as indicating a normally distributed dataset.

For within-group comparisons, paired-sample t-tests were used to examine differences between pretest and posttest scores for knowledge, attitudes, and BSE practice. Independent-sample t-tests were used to compare outcome scores between the audiovisual and poster groups after the

intervention. Statistical significance was established at $p < 0.05$. Similar statistical procedures have been used in previous intervention studies evaluating BSE education, including paired tests for within-group changes and independent tests for comparisons between educational groups [21], [26], [28].

F. ETHICAL CONSIDERATIONS

Ethical approval was obtained from the Health Research Ethics Committee of the Ministry of Health Polytechnic of Surabaya under approval number EA/4558/KEPK-Poltekkes_Sby/V/2026. Before participation, respondents were informed about the study procedures and provided informed consent. Participant confidentiality was maintained throughout data collection, analysis, and reporting. Data were analyzed in aggregate and were not presented in a form that could identify individual respondents. The research procedures were conducted in accordance with applicable principles of health research ethics.

III. RESULTS

A total of 156 couples of childbearing age participated in this study and were divided into two groups, [TABLE 1](#) showed the audiovisual group ($n=78$) and the poster group ($n=78$). Most of the respondents in both groups were in the age range of 31–35 years, namely 35.90% in the audiovisual group and 34.62% in the poster group. All respondents have a secondary education level (high school/equivalent). The characteristics of relatively similar age and level of education indicate that both groups have homogeneous backgrounds.

[TABLE 2](#) showed an increase in SADARI knowledge scores, attitudes, and practices after providing education using audiovisual media. The average knowledge score increased from 6.09 ± 0.856 to 9.00 ± 0.721 . The average attitude score increased from 29.44 ± 1.325 to 37.99 ± 1.222 . Meanwhile, the

TABLE 1
Characteristics of Respondents in the Audiovisual and Poster Group

Respondent Characteristics	Audiovisual		Poster	
	f	%	f	%
Age (years)				
26-30	9	11,54	1	1,28
31-35	28	35,90	27	34,62
36-40	15	19,23	23	29,49
41-45	15	19,23	19	24,36
46-50	11	14,10	8	10,26
Amount	78	100	78	100
Level of Education				
Basic Education (elementary school- junior high school equivalent)	0	0	0	0
Secondary Education (High School- equivalent)	78	100	78	100
Higher Education (D1, D2, D3, D4/S1, S2, S3)	0	0	0	0
Amount	78	100	78	100

average practice score increased from 18.94 ± 3.694 to 33.55 ± 3.992 . The results of the paired t-test showed that all of these changes were statistically significant ($p < 0.001$).

TABLE 2

Changes in SADARI Knowledge, Attitudes, and Practices Scores in Audiovisual Groups

	<i>Pre-Test</i>		<i>Post Test</i>		<i>p-value</i>
	Red	Standard Deviation	Red	Standard Deviation	
Knowledge	6,09	0,856	9	0,721	<0.001
Attitude	29,44	1,325	37,99	1,222	<0.001
Behavior	18,94	3,694	33,55	3,992	<0.001

TABLE 3

Changes in SADARI Knowledge, Attitude, and Practice Scores in Poster Groups

	<i>Pre-Test</i>		<i>Post Test</i>		<i>p-value</i>
	Red	Standard Deviation	Red	Standard Deviation	
Knowledge	5,23	1,104	6,76	0,900	<0.001
Attitude	30	0,000	30	0,000	0,000
Behavior	11,32	3,694	11,87	3,992	<0.001

In **TABLE 3**, there was an increase in the knowledge score from 5.23 ± 1.104 to 6.76 ± 0.900 and the practice score from 11.32 ± 3.694 to 11.87 ± 3.992 after the intervention. The results of the paired t-test showed that the increase was statistically significant ($p < 0.001$). Meanwhile, the attitude score did not change with an average score of 30.00 before and after the intervention.

TABLE 4

Comparison of SADARI Knowledge, Attitudes, and Practices Scores between Audiovisual and Poster Groups

	<i>Pre Test (p-value)</i>	<i>Post Test (p-value)</i>
Poster-Audiovisual Knowledge	<0.001 ($P < 0.05$)	<0.001 ($P < 0.05$)
Poster-Audiovisual Attitude	<0.001 ($P < 0.05$)	<0.001 ($P < 0.05$)
Poster-Audiovisual Behavior	<0.001 ($P < 0.05$)	<0.001 ($P < 0.05$)

TABLE 4 showed a significant difference between the audiovisual group and the poster group on the variables of knowledge, attitude, and practice of SADARI both before and after the intervention ($p < 0.001$). After providing education, the audiovisual group showed a higher increase in scores than the poster group on all variables studied.

IV. DISCUSSION

A. EFFECT OF AUDIOVISUAL AND POSTER-BASED EDUCATION ON KNOWLEDGE AND ATTITUDES TOWARD BSE

The findings of this study demonstrate that health education using audiovisual media produced significant improvements in knowledge and attitudes toward Breast Self-Examination (BSE/SADARI) among married women aged 30–49 years. In the audiovisual group, the mean knowledge score increased from 6.09 ± 0.856 before the intervention to 9.00 ± 0.721 after the intervention, while the mean attitude score increased from 29.44 ± 1.325 to 37.99 ± 1.222 . Both changes were statistically

significant ($p < 0.001$). These results indicate that audiovisual education was able to influence both the cognitive and affective domains of BSE-related health behavior. The findings are consistent with previous evidence showing that structured educational interventions can improve women's knowledge, beliefs, and BSE-related behaviors [29].

The improvement in knowledge may be attributed to the ability of audiovisual media to integrate visual information, narration, and procedural demonstrations within a single educational presentation. Compared with text-only materials, audiovisual content can present information in a more concrete and sequential manner, allowing respondents to simultaneously observe and hear explanations of breast cancer risk, early detection, and the correct BSE procedure. Karimian et al. reported similar findings, demonstrating that video-based multimedia training significantly improved knowledge, attitude, and BSE performance among women [30]. Their study also emphasized the flexibility of multimedia delivery, particularly when educational information is presented through short and structured video materials. Thus, the present findings reinforce the potential of audiovisual education as a practical medium for communicating BSE information in community settings.

The poster group also experienced a significant increase in knowledge, from 5.23 ± 1.104 to 6.76 ± 0.900 ($p < 0.001$). This result indicates that printed visual media can still function as an educational resource for transferring fundamental BSE information. Posters provide concise messages and visual representations that can be repeatedly viewed by participants without requiring technological equipment. Therefore, their use may be particularly appropriate in primary healthcare facilities and community activities where audiovisual infrastructure is limited. Nevertheless, the magnitude of knowledge improvement was greater in the audiovisual group, suggesting that the combination of auditory and visual information may provide a more comprehensive learning experience than static information alone.

A different pattern was observed for attitude. The audiovisual group demonstrated a significant increase in attitude scores, whereas the poster group did not show a significant change. This finding suggests that knowledge acquisition does not necessarily result in an immediate change in attitudes. Attitude is influenced by multiple factors, including perceived benefits, perceived barriers, subjective norms, motivation, previous experiences, and perceived behavioral control. Research based on the Theory of Planned Behavior has demonstrated that attitude, subjective norms, and perceived behavioral control are important components associated with BSE intention and behavior [34]. Similarly, educational interventions incorporating behavioral constructs have been shown to improve BSE-related attitudes and subsequent practice [33], [34].

The difference between the two media may therefore be related to the depth of engagement generated during the learning process. Audiovisual materials can combine narration, movement, demonstrations, and contextual examples, potentially making the information more engaging and easier to relate to personal health behavior. Posters, in

contrast, primarily communicate through static visual information and may be more effective for reinforcing factual information than for producing immediate affective change. This interpretation should nevertheless be treated cautiously because the present study did not directly measure the psychological mechanisms responsible for attitude change.

The results are also relevant to the Indonesian context. A systematic review and meta-analysis of BSE practice in Indonesia reported that knowledge, positive attitudes, family support, and exposure to breast cancer information were associated with BSE practice [35]. Consequently, improving knowledge and attitudes through accessible health education may represent an important component of community-based breast health promotion. However, educational media should not be considered the sole determinant of BSE behavior because social, cultural, and individual factors may influence whether knowledge and attitudes are translated into routine practice.

B. EFFECT OF EDUCATIONAL MEDIA ON BSE PRACTICE AND COMPARISON WITH PREVIOUS STUDIES

The most pronounced improvement in the present study was observed in BSE practice among participants receiving audiovisual education. The mean practice score increased from 18.94 ± 3.694 before the intervention to 33.55 ± 3.992 after the intervention ($p < 0.001$). The poster group also demonstrated a statistically significant increase in practice, although the change was considerably smaller, from 11.32 ± 3.694 to 11.87 ± 3.992 ($p < 0.001$). The between-group analysis further demonstrated significant differences in post-intervention knowledge, attitude, and practice, with all p -values below 0.001. These findings indicate that the audiovisual intervention was associated with broader short-term improvements across the three measured domains.

The stronger improvement in practice may be explained by the procedural nature of BSE. Unlike knowledge, which can be acquired through reading or listening, practical BSE performance requires participants to understand the sequence, location, pressure, and movements involved in the examination. Video demonstrations can show these procedures step by step, allowing participants to observe the expected actions before attempting to reproduce them. Karimian et al. similarly found that video-based multimedia training significantly improved BSE performance, supporting the use of audiovisual demonstrations for practical health education [30].

The present finding is also consistent with evidence from virtual and multimedia educational interventions. Kucheki et al. reported that an educational intervention using videos, booklets, and posters significantly improved BSE skills among women, although the authors noted that virtual education alone did not improve every aspect of BSE-related outcomes [31]. This comparison is important because it suggests that educational media can facilitate skill acquisition, but the effectiveness of an intervention depends not only on the medium but also on the educational design, opportunity for practice, reinforcement, and follow-up. The present study used a relatively brief intervention, consisting of two educational

sessions, and nevertheless observed a substantial improvement in practice in the audiovisual group.

Other intervention studies also support the relationship between structured education and BSE behavior. An educational intervention among female university students in Nigeria reported improvements in knowledge, attitude, and BSE practice following the intervention [32]. Likewise, a health-belief-model-based intervention in Ethiopia demonstrated significant improvements in knowledge, health beliefs, and BSE practice [33]. These findings collectively indicate that educational interventions can affect multiple dimensions of BSE behavior across different cultural and educational settings.

However, the present study differs from several previous investigations because it directly compared two commonly applicable educational media within the same study population. Rather than evaluating only whether education was effective, the study examined whether the mode of educational delivery was associated with different outcomes. This comparative approach provides additional information for health educators when selecting media for community-based BSE promotion.

Despite the positive findings, the practice outcome should be interpreted within the measurement and follow-up conditions of the study. The practice assessment was conducted after the intervention and therefore primarily reflects short-term acquisition or performance of BSE skills. An immediate improvement in observed practice does not necessarily establish that participants will perform BSE consistently over subsequent months. Evidence from longer-term educational studies suggests that sustained BSE behavior requires continued reinforcement and may be influenced by behavioral determinants beyond initial skill acquisition [34]. Therefore, future interventions should incorporate repeated education, reminders, practical reinforcement, or follow-up assessments to determine whether the observed improvements persist.

C. IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH

The findings have several implications for community-based breast cancer health promotion. First, audiovisual education may be incorporated into health promotion activities at primary healthcare facilities, particularly when the objective is to communicate both conceptual information and practical BSE procedures. Video demonstrations can be delivered through smartphones, televisions, projectors, or other relatively accessible digital devices, allowing the same standardized material to be presented to multiple groups. This characteristic may support consistency in health education delivery.

Second, posters remain useful as complementary educational media. Although the poster group showed smaller improvements, knowledge increased significantly after the intervention. Posters can therefore be positioned in waiting rooms, maternal and reproductive health service areas, community health posts, or other locations where women can repeatedly encounter BSE information. Rather than treating

audiovisual and poster media as mutually exclusive alternatives, future programs may combine them so that audiovisual materials provide detailed demonstrations while posters function as visual reminders and reinforcement materials.

The findings also have implications for the design of future BSE interventions. A recent randomized controlled trial among women aged 30–55 years found that both face-to-face and virtual education based on the Theory of Planned Behavior improved BSE-related behavioral constructs compared with a control condition, with outcomes assessed at multiple follow-up points [36]. This supports the importance of evaluating not only immediate post-intervention changes but also whether improvements remain evident after one or more months. The current study can therefore serve as a basis for subsequent research incorporating longitudinal assessment.

Several limitations should be considered when interpreting the results. First, baseline differences were observed between the audiovisual and poster groups. Because the study used a quasi-experimental design, the groups may not have been completely equivalent before the intervention. Consequently, the greater post-intervention improvement observed in the audiovisual group cannot be attributed exclusively to the educational medium without considering the possibility that pre-existing differences contributed to the observed effect. Future studies should use randomized allocation where feasible or apply statistical adjustment, such as analysis of covariance (ANCOVA), to control for baseline differences.

Second, the intervention and post-test period primarily assessed short-term changes. The study therefore cannot establish whether improvements in knowledge, attitudes, and BSE practice were maintained over a longer period. This limitation is particularly important for health behaviors that require repetition and habit formation. Longer follow-up periods, such as one, three, or six months, would provide stronger evidence regarding behavioral sustainability.

Third, the study was conducted among married women aged 30–49 years within the working area of Sukomoro Health Center, Magetan Regency. The characteristics of this population and healthcare setting may limit the generalizability of the findings to women of different ages, marital status, educational backgrounds, or geographic locations. Indonesian evidence indicates that BSE practice is influenced by multiple individual and contextual determinants, including knowledge, attitude, family support, and exposure to health information [35]. Future studies should therefore involve more heterogeneous populations and multiple healthcare settings.

Finally, the study evaluated knowledge, attitude, and practice as the principal outcomes but did not examine the longer-term determinants of adherence to routine BSE. Future research could integrate behavioral frameworks such as the Theory of Planned Behavior or Health Belief Model to investigate perceived susceptibility, perceived benefits, perceived barriers, self-efficacy, subjective norms, and behavioral intention. Such an approach would help explain

why improvements in knowledge and skills do or do not translate into sustained BSE behavior.

Overall, the findings provide comparative evidence that both audiovisual and poster-based education can contribute to BSE promotion, while audiovisual education was associated with broader short-term improvements in knowledge, attitude, and practice in the study population. The findings should be interpreted as evidence of intervention-associated short-term change rather than definitive evidence of long-term behavioral effectiveness. Future research using randomized designs, baseline-adjusted analyses, standardized instruments, and longer follow-up periods is needed to establish the durability and generalizability of these effects.

V. CONCLUSION

This study aimed to compare the effectiveness of audiovisual and poster-based health education in improving knowledge, attitudes, and practice of Breast Self-Examination (SADARI) among married women aged 30–49 years in the working area of the Sukomoro Health Center, Magetan Regency. Both media were associated with significant short-term improvements in knowledge and practice, but only audiovisual education significantly improved attitudes. In the audiovisual group ($n = 78$), mean knowledge scores rose from 6.09 to 9.00, attitude scores from 29.44 to 37.99, and practice scores from 18.94 to 33.55 (all $p < 0.001$). In the poster group ($n = 78$), knowledge increased from 5.23 to 6.76 and practice from 11.32 to 11.87 (both $p < 0.001$), whereas attitude scores remained at 30.00 before and after the intervention. Post-intervention comparisons demonstrated significant differences favoring audiovisual media across all three domains ($p < 0.001$), with the largest advantage observed in practice. These findings suggest that audiovisual education is a more effective short-term strategy than posters for strengthening early breast cancer detection behavior in primary healthcare settings, particularly where demonstration of the examination technique is required. Given the low cost and scalability of video-based delivery, integrating short demonstration videos into routine SADARI counseling may strengthen early detection efforts at the community level. However, the results must be interpreted cautiously because baseline differences existed between the groups, the follow-up was limited to the immediate post-intervention period, and the study was conducted in a single, educationally homogeneous community. Future studies should therefore employ randomized or cluster-randomized designs, apply covariate-adjusted analyses such as analysis of covariance to account for baseline imbalance, and include follow-up assessments at several months to determine whether improvements are sustained. Further research involving larger and more diverse populations, additional behavioral constructs such as subjective norms and perceived behavioral control, and hybrid approaches that combine audiovisual demonstration with interactive or peer-supported components is also warranted to strengthen the evidence base for community-based breast cancer screening programs.

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DATA AVAILABILITY

Data supporting the findings of this study are available from the authors of the correspondence and can be obtained upon reasonable request while respecting respondent confidentiality.

AUTHOR CONTRIBUTION

Desti Ria Fortuna Istanto contributes to the conceptualization of research, the preparation of proposals, the development of research instruments, data collection, data analysis and interpretation, and the preparation of article manuscripts. Nana Usnawati contributes to research supervision, methodology validation, scientific substance review, and critical revision of manuscripts. Agung Suharto contributed to the preparation of research design, data analysis, interpretation of research results, and manuscript revision. Suparji contributes to academic supervision, validation of research results, scientific quality assurance of manuscripts, and final approval of manuscripts for publication. All authors have read, reviewed, and approved the final version of the manuscript.

DECLARATIONS

ETHICAL APPROVAL

The author states that this research has been carried out in accordance with the applicable research ethics principles and obtained ethical approval from the Health Research Ethics Committee prior to the implementation of the research.

CONSENT FOR PUBLICATION PARTICIPANTS

All respondents had given written informed consent to participate in the study. The identity of the respondent is kept confidential and not included in this publication.

COMPETING INTERESTS

The author states that he does not have any competing interests either financial or non-financial related to the research and publication of this article.

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